

The South Carolina State Conference of
the NAACP, et al v. Alexander, et al

CA No.: 3:21-cv-03302-MGL-TJH-RMG

EXHIBIT C

*Senate and House Defendants' Daubert Motion in
Limine to Exclude Reports, Opinions, and
Testimony of Dr. Joseph Bagley*

Sean Trende's April 18, 2022 Initial Report

**IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF SOUTH CAROLINA
COLUMBIA DIVISION**

THE SOUTH CAROLINA STATE
CONFERENCE OF THE NAACP, *et al.*,

Plaintiffs,

v.

HENRY D. MCMASTER, *et al.*,

Defendants.

Case No. 3:21-cv-03302-JMC-TJH-RMG

Expert Report of Sean P. Trende

I. Qualifications

Professional Experience:

I serve as Senior Elections Analyst for RealClearPolitics. I joined RealClearPolitics in January of 2009 after practicing law for eight years. I assumed a fulltime position with RealClearPolitics in March of 2010. RealClearPolitics is a company of around 50 employees, with its main offices in Washington D.C. It produces one of the most heavily trafficked political websites in the world, which serves as a one-stop shop for political analysis from all sides of the political spectrum and is recognized as a pioneer in the field of poll aggregation. It produces original content, including both data analysis and traditional reporting. It is routinely cited by the most influential voices in politics, including David Brooks of *The New York Times*, Brit Hume of Fox News, Michael Barone of The Almanac of American Politics, Paul Gigot of The Wall Street Journal, and Peter Beinart of The Atlantic.

My main responsibilities with RealClearPolitics consist of tracking, analyzing, and writing about elections. I collaborate in rating the competitiveness of Presidential, Senate, House, and gubernatorial races. As a part of carrying out these responsibilities, I have studied and written extensively about demographic trends in the country, exit poll data at the state and federal level, public opinion polling, and voter turnout and voting behavior. In particular, understanding the way that districts are drawn and how geography and demographics interact is crucial to predicting United States House of Representatives races, so much of my time is dedicated to that task.

Publications and Speaking Engagements:

I am currently a Visiting Scholar at the American Enterprise Institute, where my publications focus on the demographic and coalitional aspects of American Politics. I am also the author of *The Lost Majority: Why the Future of Government is up For Grabs and Who Will Take It*. In this book, I explore realignment theory. It argues that realignments are a poor concept that should be abandoned. As part of this analysis, I conducted a thorough analysis of demographic and political trends beginning in the 1920s and continuing through the modern times, noting the fluidity and fragility of the coalitions built by the major political parties and their candidates.

I also co-authored the 2014 Almanac of American Politics. The Almanac is considered the foundational text for understanding congressional districts and the representatives of those districts, as well as the dynamics in play behind the elections. PBS's Judy Woodruff described the book as "the oxygen of the political world," while NBC's Chuck Todd noted that "Real political

junkies get two Almanacs: one for the home and one for the office.” My focus was researching the history of and writing descriptions for many of the newly-drawn districts, including tracing the history of how and why they were drawn the way that they were drawn. I was assigned South Carolina as one of my states. I have also authored a chapter in Larry Sabato’s post-election compendium after every election dating back to 2012.

I have spoken on these subjects before audiences from across the political spectrum, including at the Heritage Foundation, the American Enterprise Institute, the CATO Institute, the Bipartisan Policy Center, and the Brookings Institution. In 2012, I was invited to Brussels to speak about American elections to the European External Action Service, which is the European Union’s diplomatic corps. I was selected by the United States Embassy in Sweden to discuss the 2016 elections to a series of audiences there and was selected by the United States Embassy in Spain to fulfill a similar mission in 2018. I was invited to present by the United States Embassy in Italy, but was unable to do so because of my teaching schedule.

Education:

I am currently enrolled as a doctoral candidate in political science at The Ohio State University. I have completed all my coursework and have passed comprehensive examinations in both methods and American Politics. In pursuit of this degree, I have also earned a Master’s Degree in Applied Statistics. My coursework for my Ph.D. and M.A.S. included, among other things, classes on G.I.S. systems, spatial statistics, issues in contemporary redistricting, machine learning, non-parametric hypothesis tests and probability theory.

In the winter of 2018, I taught American Politics and the Mass Media at Ohio Wesleyan University. I taught Introduction to American Politics at The Ohio State University for three semesters from Fall of 2018 to Fall of 2019, and again in Fall of 2021. In the Springs of 2020 and 2021, I taught Political Participation and Voting Behavior at The Ohio State University. This course spent several weeks covering all facets of redistricting: How maps are drawn, debates over what constitutes a fair map, measures of redistricting quality, and similar topics. I am teaching this course this semester as well.

Prior Engagements as an Expert:

In 2021, I served as one of two special masters appointed by the Supreme Court of Virginia to redraw the districts that will elect the Commonwealth’s representatives to the House of Delegates, state Senate, and U.S. Congress in the following decade. The Supreme Court of Virginia

accepted those maps, which were praised by observers from across the political spectrum. “New Voting Maps, and a New Day, for Virginia,” *The Washington Post* (Jan. 2, 2022), *available at* <https://www.washingtonpost.com/opinions/2022/01/02/virginia-redistricting-voting-maps-gerrymandee>; Henry Olsen, “Maryland Shows How to do Redistricting Wrong. Virginia Shows How to Do it Right,” *The Washington Post* (Dec. 9, 2021), *available at* <https://www.washingtonpost.com/opinions/2021/12/09/maryland-virginia-redistricting/>; Richard Pildes, “Has VA Created a New Model for a Reasonably Non-Partisan Redistricting Process,” *Election Law Blog* (Dec. 9, 2021), *available at* <https://electionlawblog.org/?p=126216>.

In 2019, I was appointed as the court’s expert by the Supreme Court of Belize. In that case I was asked to identify international standards of democracy as they relate to malapportionment claims, to determine whether Belize’s electoral divisions (similar to our congressional districts) conformed with those standards, and to draw alternative maps that would remedy any existing malapportionment.

I served as a Voting Rights Act expert to counsel for the Arizona Independent Redistricting Commission in 2021 and 2022.

I previously authored an expert report in *Dickson v. Rucho*, No. 11-CVS-16896 (N.C. Super Ct., Wake County), which involved North Carolina’s 2012 General Assembly and Senate maps. Although I was not called to testify, it is my understanding that my expert report was accepted without objection.

I also authored an expert report in *Covington v. North Carolina*, Case 5 No. 1: 15-CV-00399 (M.D.N.C.), which involved almost identical challenges in a different forum. Due to what I understand to be a procedural quirk, where my largely identical report from Dickson had been inadvertently accepted by the plaintiffs into the record when they incorporated parts of the Dickson record into the case, I was not called to testify.

I authored two expert reports in *NAACP v. McCrory*, No. 1:13CV658 (M.D.N.C.), which involved challenges to multiple changes to North Carolina’s voter laws. I was admitted as an expert witness and testified at trial. My testimony discussed the “effect” prong of the Voting Rights Act claim. I did not examine the issues relating to intent.

I authored reports in *NAACP v. Husted*, No. 2:14-cv-404 (S.D. Ohio), and *Ohio Democratic Party v. Mated*, Case 15-cv-01802 (S.D. Ohio), which dealt with challenges to various Ohio voting laws. I was admitted and testified at trial in the latter case (the former case settled). The judge in

the latter case ultimately refused to consider one opinion, where I used an internet map-drawing tool to show precinct locations in the state. Though no challenge to the accuracy of the data was raised, the judge believed I should have done more work to check that the data behind the application was accurate.

I served as a consulting expert in *Lee v. Virginia Board of Elections*, No. 3:15-cv-357 (E.D. Va. 2016), a voter identification case. Although I would not normally disclose consulting expert work, I was asked by defense counsel to sit in the courtroom during the case and review testimony. I would therefore consider my work de facto disclosed.

I filed an expert report in *Mecinas v. Hobbs*, No. CV-19-05547-PHX-DJH (D. Ariz. 2020). That case involved a challenge to Arizona's ballot order statute. Although the judge ultimately did not rule on a motion *in limine* in rendering her decision, I was allowed to testify at the hearing.

I authored two expert reports in *Feldman v. Arizona*, No. CV-16-1065-PHX-DLR (D. Ariz.). Plaintiffs in that case challenged an Arizona law prohibiting the collection of voted ballots by third parties that were not family members or caregivers and the practice of most of the state's counties to require voters to vote in their assigned precinct. My reports and testimony were admitted. Part of my trial testimony was struck in that case for reasons unrelated to the merits of the opinion; counsel for the state elicited it while I was on the witness stand and it was struck after Plaintiffs were not able to provide a rebuttal to the new evidence.

I authored an expert report in *Pascua Yaqui Tribe v. Rodriguez*, No. 4:20-CV-00432-TUC-JAS (D. Ariz.), which involved early voting. My expert report and testimony were admitted at trial.

I authored expert reports in *A. Philip Randolph Institute v. Smith*, No. 1:18-cv-00357-TSB (S.D. Ohio), *Whitford v. Nichol*, No. 15-cv-421-bbc (W.D. Wisc.), and *Common Cause v. Rucho*, NO. 1:16-CV-1026-WO-JEP (M.D.N.C.), which were efficiency gap-based redistricting cases filed in Ohio, Wisconsin, and North Carolina.

I have only been excluded as an expert once, in *Fair Fight v. Raffensperger*. The judge concluded that I lacked sufficient credentials to testify as an expert in election administration.

I authored an expert report in the cases of *Ohio Organizing Collaborative, et al v. Ohio Redistricting Commission*, et al (No. 2021-1210); *League of Women Voters of Ohio, et al v. Ohio Redistricting Commission*, et al (No. 2021-1192); *Bria Bennett, et al v. Ohio Redistricting Commission*, et al (No. 2021-1 198). That case was decided on the written record.

I authored two expert reports in the consolidated cases of *NCLCV v. Hall* and *Harper v. Hall* (21 CVS 15426; 21 CVS 500085), two political/racial gerrymandering cases. My reports and testimony were admitted.

I authored two expert reports in the consolidated cases of *Montana Democratic Party v. Jacobson*, DV-56-2021-451 (Mont. Dist. Ct.). These cases involve the elimination of same-day registration, use of student identification to vote, and the restriction of ballot collection.

I authored an expert report on behalf of amicus curiae in the consolidated cases of *Carter v. Chapman* (No. 464 M.D. 2021) and *Gressman v. Chapman* (No. 465 M.D. 2021), which were redistricting cases before the Supreme Court of Pennsylvania.

I filed an expert report in *Harkenrider v. Hochul*, (No. E2022-0116CV), which is a partisan gerrymandering challenge to New York's enacted Congressional and state Senate maps. My reports and testimony were admitted.

I filed an expert report in *Szeliga v. Lamone*, Case No. C-02-CV-21-001816 (Md. Cir. Ct.) and *In the Matter of 2022 Legislative Redistricting of the State*, Misc. No. 25 (Md. Ct. App.), political gerrymandering cases in Maryland. My reports and testimony were admitted.

I filed an expert report in *Graham v. Adams*, (No. 22-CI-00047) (Ky. Cir. Ct.), a political gerrymandering case. I was admitted as an expert and allowed to testify as trial.

I filed an expert report in *NAACP v. McMaster*, (No. 3:21-cv-03302-JMC-T,11-1- RMG), which is a racial gerrymandering challenge to South Carolina's enacted state House maps.

II. Scope of Engagement

I have been retained by Jones Day on behalf of their clients, defendants in the above matter, to evaluate South Carolina's Congressional Districts, enacted by the South Carolina General Assembly and signed by their governor, Henry McMaster [hereinafter "Enacted Plan" or "Enacted Map"]. This map replaces the previous map, in effect from 2012 to 2020 [hereinafter "Benchmark Plan"]. I have been retained and am being compensated at a rate of \$400.00 per hour to provide my expert analysis of the various factors that were employed in the enacted plan.

III. Summary of Opinions

Based on the work performed as addressed in the following sections of the report, I hold to the following opinions to a reasonable degree of professional certainty:

- The Enacted Map is contiguous and complies with equal-population requirements.

- The Enacted Map generally reflects only modest changes from the Benchmark Plan, which this Court upheld against racial gerrymandering and other challenges in *Backus*.
- The Enacted Map retains high percentages of the cores of all of the Benchmark Districts. Those percentages range from 82.84% in District 1 to 99.96% in District 7, and five districts retain more than 94% of their cores.
- The Enacted Map reduces the number of split counties from 12 in the Benchmark Plan to 10 in the Enacted Plan.
- The Enacted Map significantly reduces the number of voting tabulation district splits from 65 in the Benchmark Plan to 13 in the Enacted Plan. In other words, the Enacted Plan repairs 52 precincts that were split in the Benchmark Plan.
- The Enacted Plan’s districts compare favorably to the Benchmark Plan’s Districts on four common compactness measures.
- The Enacted Plan’s changes to the district line between Districts 2 and 6 are largely explained by the repairing of precincts that were split in the Benchmark Plan.
- The Enacted Plan’s changes to the district line between Districts 5 and 6 are largely explained by the repairing of precincts that were split in the Benchmark Plan.
- The Enacted Plan’s changes to the district line between Districts 1 and 6 follow natural geographic boundaries and make two counties, Berkeley County and Beaufort County, whole, while adding a portion of Jasper County to District 1.
- The Enacted Plan’s changes to the district line between Districts 1 and 6 have a minimal effect on District 1’s racial composition but increase its Republican vote share by nearly three net percentage points on the two-party 2020 presidential election results.

IV. Data Relied Upon and Construction of Datasets

For purposes of this report, I reviewed and/or relied upon the following materials:

- The 2021 Senate Redistricting Guidelines (Sept. 17, 2021);
- The 2021 House Guidelines and Criteria for Congressional and Legislative Redistricting (Sept. 17, 2021);
- This Court’s opinion in *Backus v. South Carolina*, 857 F. Supp. 2d 553 (2002);

- This Court’s opinion in *Colleton County Council v. McConnell*, 201 F.Supp.2d 618 (2012);
- Block assignment files for the previous congressional district lines and current district lines, available at <https://redistricting.scsenate.gov/planproposal.html>;
- Shapefiles for South Carolina census blocks, precincts, and counties downloaded from the Redistricting Data Hub, available at <https://redistrictingdatahub.org/>;
- Shapefiles for historic congressional districts, maintained by at <https://cdmaps.polisci.ucla.edu/>
- Public hearings transcripts, available at <https://redistricting.scsenate.gov/meetinginfo.html>.
- Other documents referenced in this report.

Obviously calculating racial categories is crucial for the analysis called for by this sort of lawsuit, particularly of Black voters in South Carolina. Unfortunately, this is a more complicated endeavor than it may seem at first blush. The census allows individuals to select multiple races, and different sources will use different combinations of identity to define a person’s race. In addition, people of all races may identify as Hispanic. For purposes of this report, I define “Black” and “BVAP” using the same non-Hispanic Black categorization utilized by the South Carolina General Assembly to draw the Enacted Plan.

Because election data are made available at the precinct level, most of the district-wide election data is accurate. When precincts are split, however, it is necessary to estimate how many votes a candidate earned from each portion of the precinct. This is accomplished by taking the precinct-wide votes for each candidate and assigning them to census blocks. Rather than simply dividing by the number of blocks, analysts usually weight each precinct by some number. Here, votes are assigned proportionally to the voting age population in each block. Separate sums for each portion of the precinct are then calculated by adding up the blocks in each precinct segment. Different approaches and weighting mechanisms can produce marginally different results.

All shapefiles are projected using the WGS 84 projection.

V. Analysis of South Carolina's Congressional Districts

Overview

This Court has identified multiple legitimate goals that the South Carolina legislature may pursue when redistricting, including (1) recognizing communities of interest; (2) preserving district cores; (3) respecting county and municipal boundaries, as well as geographical boundaries; (4) keeping incumbents' residences in their districts. In addition, both the House and the Senate add the following factors: (1) compliance with federal law and United States Constitution, with particular attention to the Voting Rights Act of 1965 and equal protection clause of the 14th Amendment; (2) equal population; (3) contiguity; and (4) compactness. The House guidelines further specify that county, municipal, and precinct boundaries may be relevant when considering communities of interest; the Senate guidelines make minimizing the number of splits at those three levels separate criteria. This Court concluded in *Colleton County* that preserving cores of districts is generally the cleanest expression of the General Assembly's intent to group persons into communities of interest. This report otherwise does not deal with communities of interest directly.

Contiguity and Equal Population

At the end of the 2010s, the Benchmark Plan had become malapportioned. It had not, however, become uniformly so. As we can see in Table 1, most of the districts deviated from their ideal population of 731,204 residents by less than 5%. The two exceptions were District 1, which had 87,689 extra residents and was overpopulated by 11.99%, and District 6, which had lost population, was underpopulated by 11.59% and needed to gain 84,741 residents.

Table 1: S.C. District Populations, Benchmark Plan

District Number	Population	Deviation
1	818,893	87,689
2	721,829	-9,375
3	706,785	-24,419
4	760,233	29,029
5	736,286	5,082
6	646,463	-84,741
7	727,936	-3,268

In response to this, and the fact that the map easily elected Republicans to Congress in five of the seven districts, the Republican-controlled General Assembly passed the Enacted Map, which Gov. Henry McMaster, also a Republican, signed into law on January 26, 2022. The resulting plan is contiguous and minimizes population deviations consistent with traditional principles and the U.S. Constitution.

Table 2: S.C. District Populations, Enacted Plan

District Number	Population	Deviation
1	731,203	-1
2	731,203	-1
3	731,204	0
4	731,204	0
5	731,204	0
6	731,204	0
7	731,203	-1

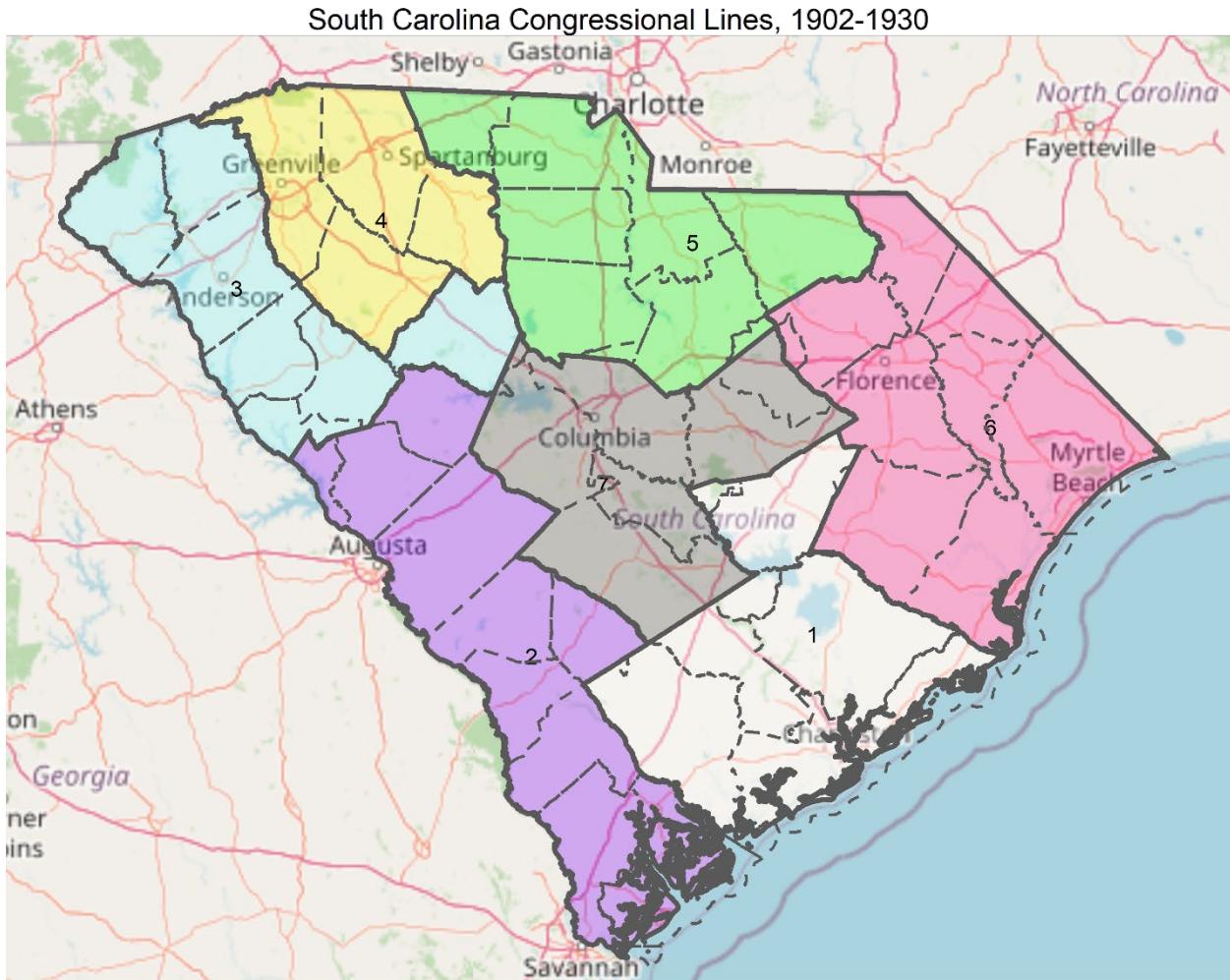
Respecting County, Municipal, and Precinct Boundaries

The map generally respects administrative boundaries to a substantially greater extent than the preceding map. The previous map split 12 counties, while also traversing 65 voting districts. The Enacted Plan reduces the number of split counties to 10. Six of those splits occur on the boundaries between Districts two through seven, which is only one more split than the realistic minimum number of county splits between six districts. District 1 and District 6 split four counties between them, for reasons described below. The Enacted Plan also reduces the number of split precincts to 13, from 65. *Compare [House Plan 2 Senate Amendment 1 Political Subdivision Splits Between Districts\(2\).pdf \(scsenate.gov\)](#), with [Benchmark Congressional Political Subdivision Splits Between Districts.pdf \(scsenate.gov\)](#).*

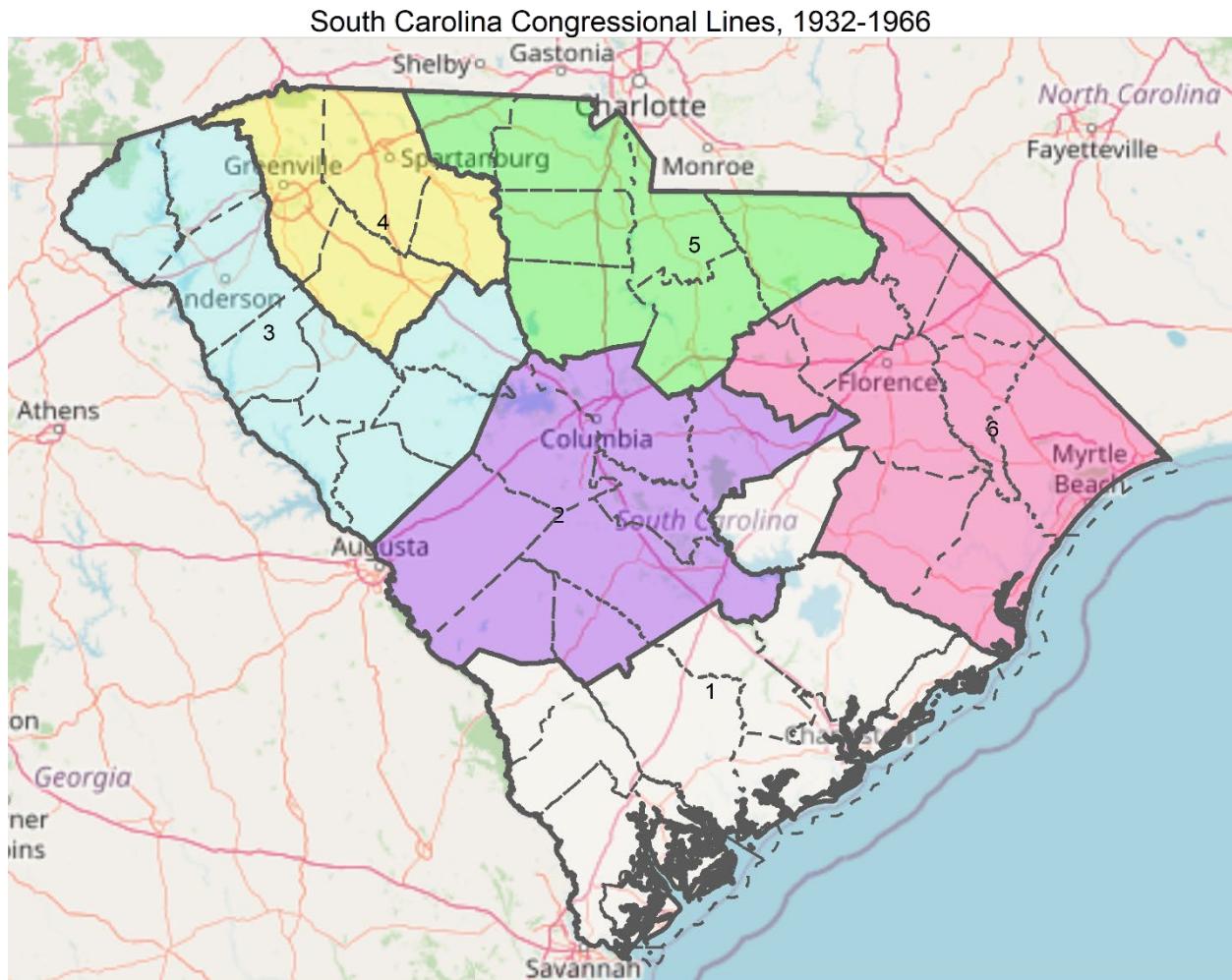
Preservation of District Cores

Despite significant changes to population, and the addition/subtraction of districts, South Carolina's district cores have remained surprisingly consistent over the past century. Going back to the early 1900s, the 1st District was anchored in Charleston, the 2nd District was anchored in Beaufort and the counties along the Georgia border. The 3rd District was anchored in Anderson,

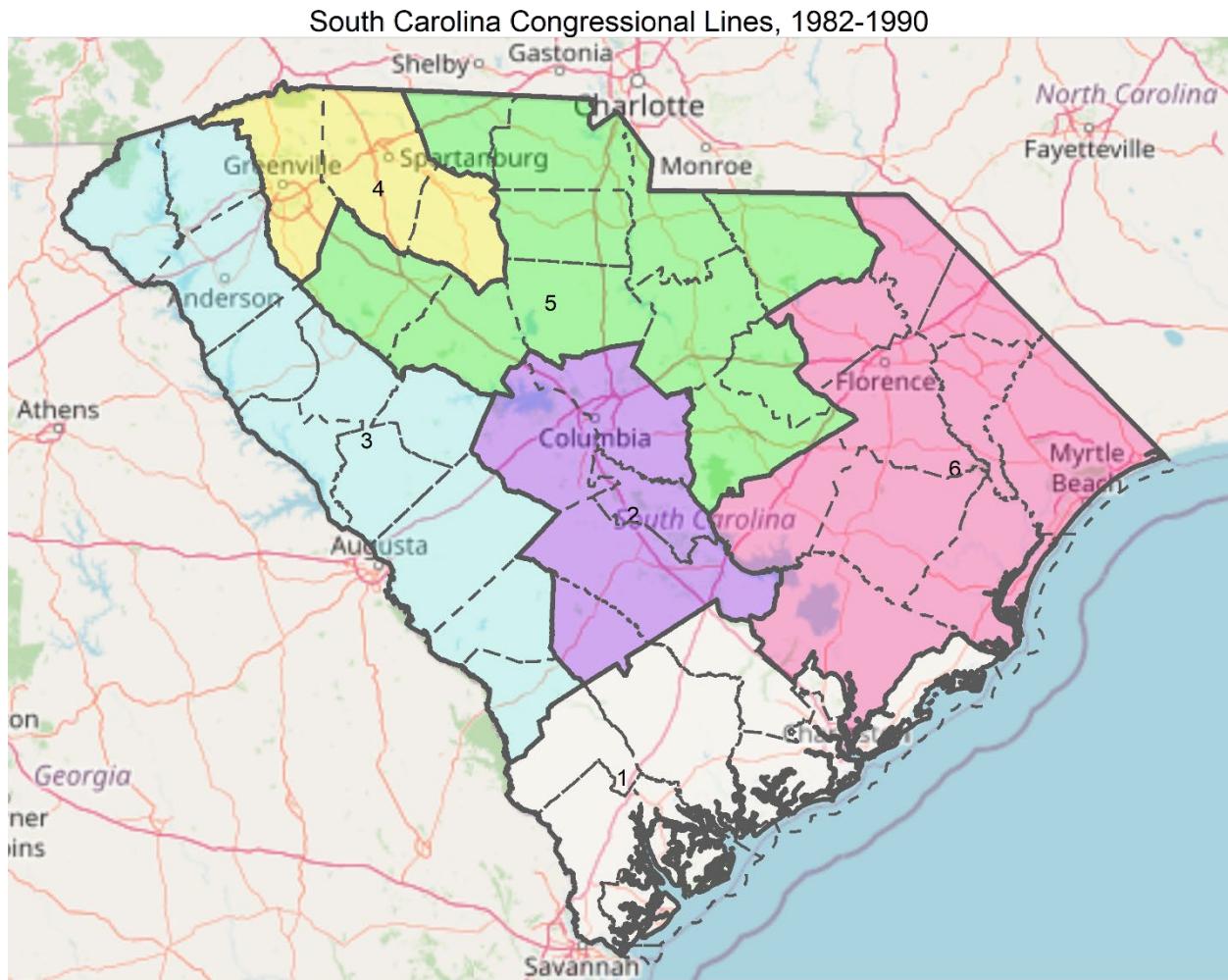
the 4th District combined Greenville and Spartanburg, the 5th District was anchored in then-rural northern South Carolina, the 6th in Myrtle Beach and the Pee Dee region, and the 7th in Columbia. There was, of course, a political balance struck, as three of the state's districts were anchored north of the Fall Line, three south of the Fall Line, and one in the Capitol, which is on the Fall Line.



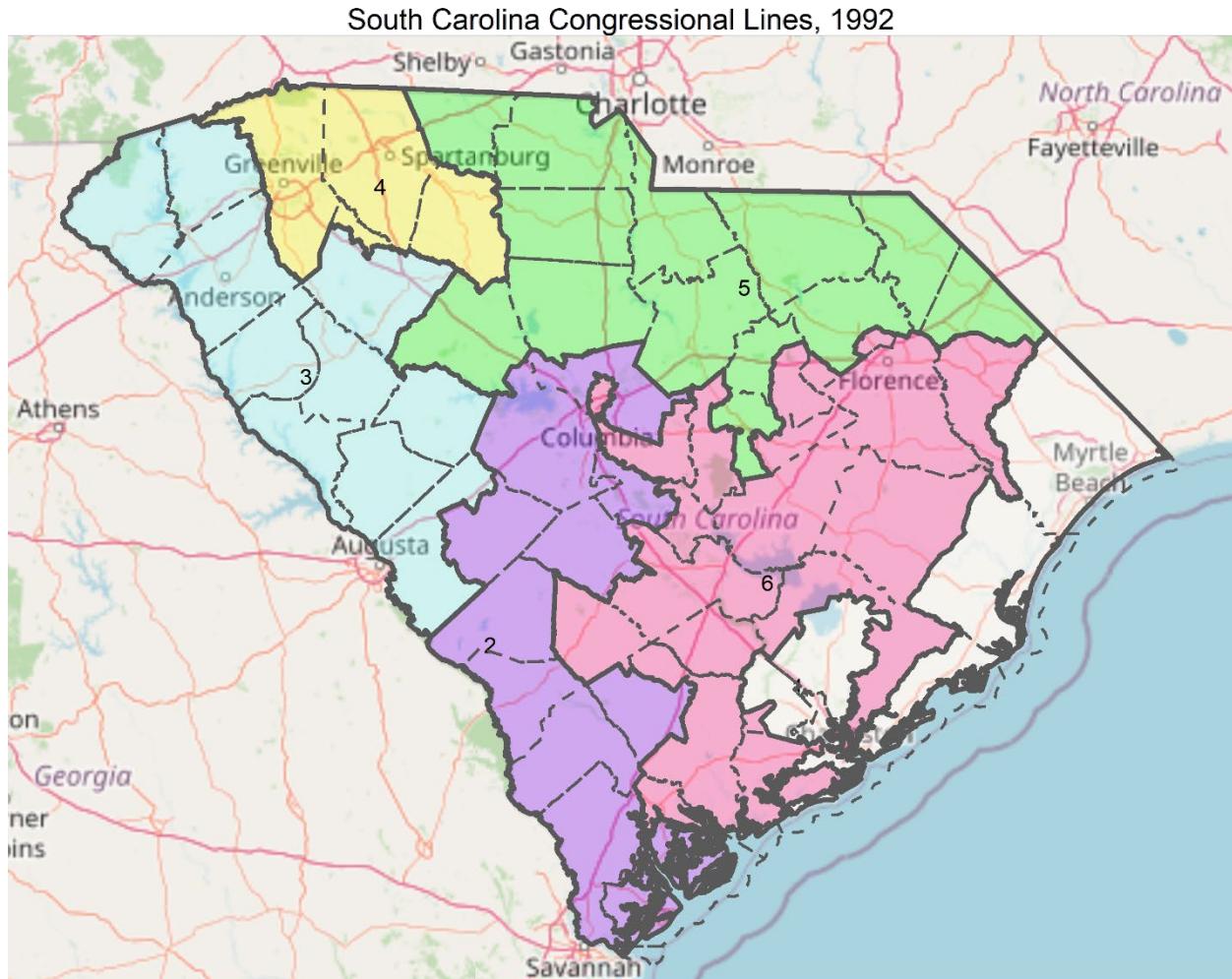
In 1932, South Carolina lost a district. The Second and Seventh Districts were combined, creating a district based in Charleston stretching to the Georgia border.



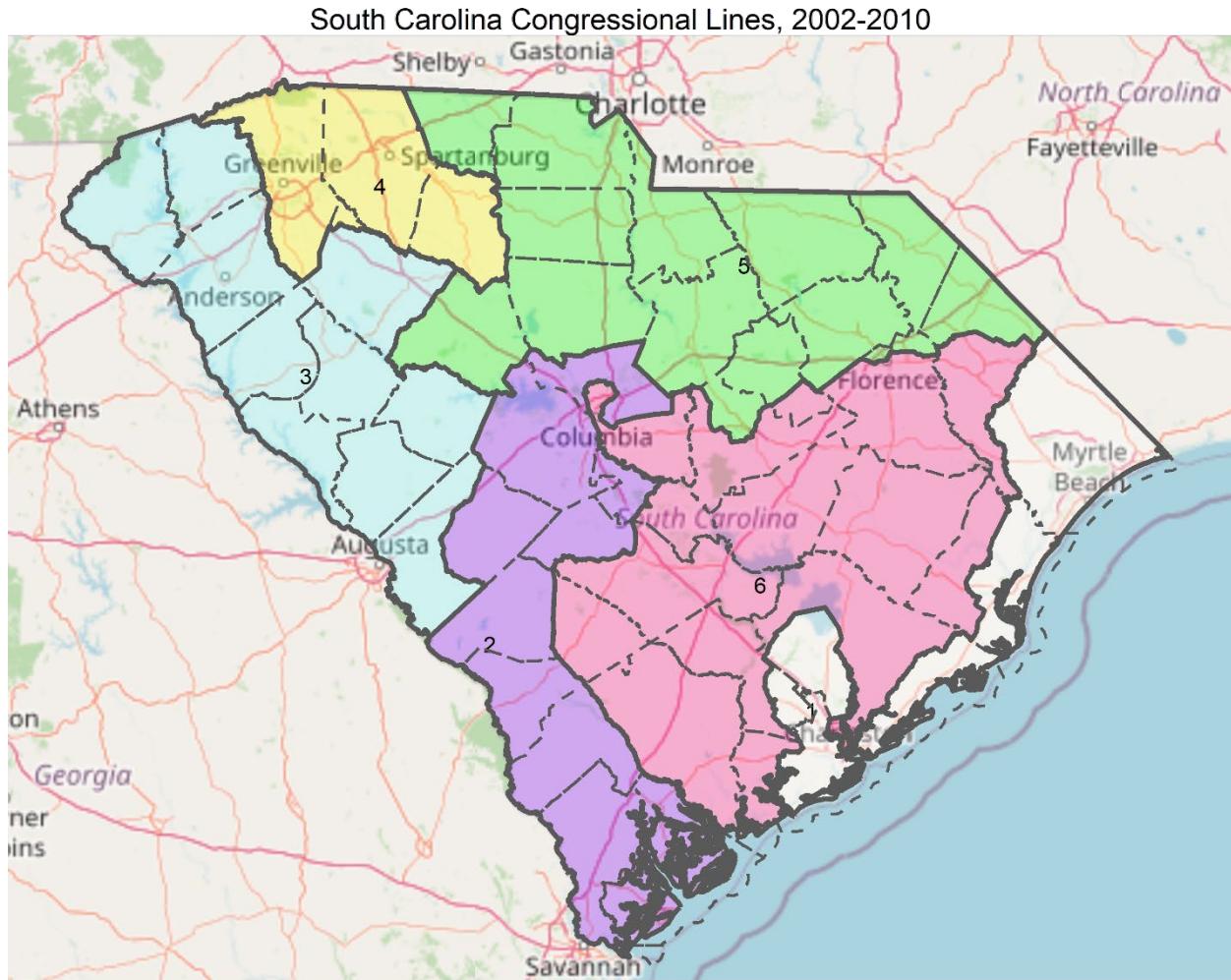
This basic arrangement of districts would endure for 60 years, even after *Baker v. Carr* and its progeny required equipopulous districts. The 1982 map would look very much recognizable to a map-drawer who had been involved in drawing lines earlier in the century.



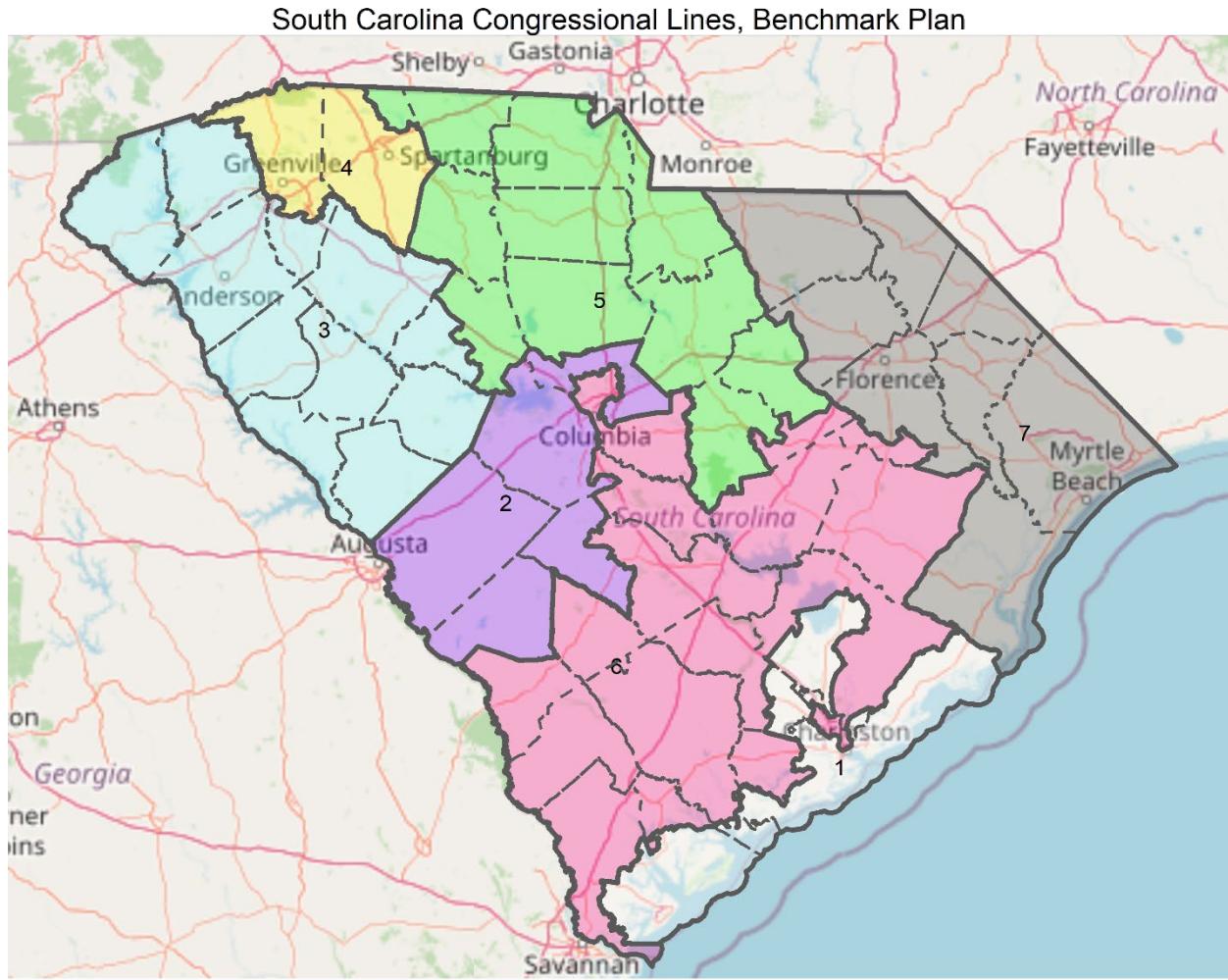
In 1992, South Carolina reorganized the Lowcountry districts, in part to create an ability-to-elect district. It succeeded in this regard, as the 6th District elected Rep. Jim Clyburn, the first African-American member of Congress from South Carolina since 1897. Even then, there was much continuity in the maps. The Upstate districts as well as the Fifth District remained mostly unchanged. The First was still anchored in Charleston, although it was reoriented along the coast toward Horry County. The Second District was given its now-distinctive “hook” shape, and extended along the Georgia border. It was ultimately struck down as a racial gerrymander; the lines were slightly modified in 1994 and remained in place for the remainder of the decade.



In 2002, the Republican-controlled General Assembly and Democratic governor deadlocked over a plan, leaving it to this Court to draw the lines for the Congressional districts. While the court-drawn map smoothed out the lines, it retained largely the same map that had been in place.



For the redistricting held in the wake of the 2010 census, Republicans controlled the legislature as well as the governorship. Population growth also led to the state gaining a seat in congressional redistricting. The General Assembly ultimately opted to create a district in the Pee Dee region and Myrtle Beach, effectively recreating the old 6th Congressional District.



For the most part, the Enacted Plan makes only minor changes to the Benchmark Plan. All seven districts retain roughly their same “footprint,” or cores. The boundaries between District 1 and District 6 see the most changes. This is unsurprising, given that these districts were required to lose and gain a large number of residents, respectively; these changes are explored in more detail below. The Second District remains based in Columbia. The Third District is based around Anderson, while the Fourth connects Greenville and Spartanburg. The Fifth District’s population is centered around York County, which is increasingly comprised of suburbs or Charlotte, while the Seventh is anchored in Myrtle Beach and the Pee Dee region.

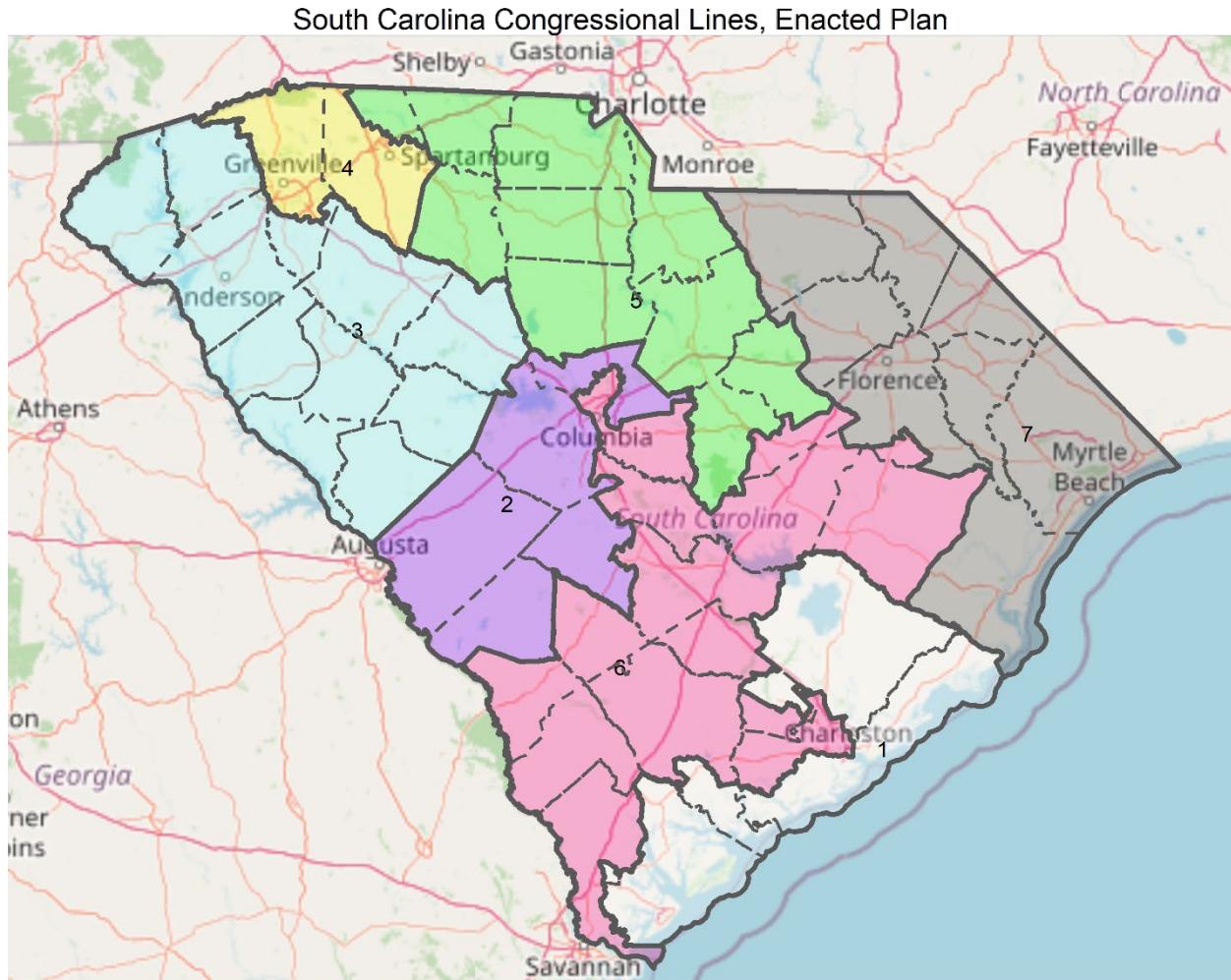


Table 2 gives the “core retention” statistics for the state’s congressional districts. Core retention – which both this Court’s decisions and the redistricting guidelines promulgated by the General Assembly identified as a legitimate consideration – is the percentage of a district’s residents who are kept in a district from one redrawing to the next.

Table 3: Core Population Retention, S.C. Districts

District Number	% Retained
1	82.84%
2	98.01%
3	98.02%
4	94.34%
5	94.38%
6	87.55%
7	99.96%

Five of the state's seven districts have very high core retention rates, retaining over 94% of their populations from the Benchmark Plan, with District 7 retaining almost 100% of its core. Even the 1st and 6th districts retain a large share of their populations, with the Sixth approaching 90% retention and the 1st retaining over 80% of its core.

Table 4 gives a different perspective on these numbers. It shows the number of residents who are moved between districts. The left column represents districts that gave residents to other districts; these recipients are represented in columns. This table is best read in rows.

Table 4: Population Movements by District, 2012-2022 Lines

From	To						
	1	2	3	4	5	6	7
1	—	—	—	—	—	140,489	—
2	—	—	—	—	—	14,397	—
3	—	—	—	14,001	—	—	—
4	—	—	7,111	—	35,919	—	—
5	—	—	31,309	—	—	10,038	—
6	52,799	23,771	—	—	346	—	3,553
7	—	—	—	—	—	286	—

The largest two transfers of residents come from the boundary between District 1 and District 6. The former sheds 140,489 residents to the latter, while District 6 loses 52,799 residents to the former. District 2 sheds 14,397 residents to District 6, while gaining 23,771 residents back

from that district. The rest of the changes are marginal; the Third gives 14,001 residents to the Fourth District, while gaining back 7,111 residents from the Fourth and 31,309 residents from the Fifth District. In addition to the changes described above, the Fourth District donates 35,919 residents to the Fifth District. The Fifth District donates 10,038 residents to the Sixth, while receiving 345 residents back from it. The Seventh donates 286 residents to the Sixth and receives 3,553 residents back.

Compactness

There are many proposed ways to measure to the idea of “compactness,” and each captures a different aspect of the concept. Reock scores, for example, ask how well the district fills a circle drawn to bound the district; as a district becomes more circular and less elongated, its Reock score improves. The Convex Hull Score ask a similar question, but uses a polygon – a figure with straight sides and angles – to bound the district instead of a circle. The Polsby-Popper score takes a different approach and asks whether a district would fill a circle with the same perimeter/circumference as the district; this punishes districts with inlets and appendages. The Inverse Schwartzberg score has a similar motivation; it is calculated by taking the ratio of the perimeter of the district to the circumference of a circle with the same area as the district.

There are, again, dozens of proposed metrics. I utilize the four above because they give a look at different aspects of compactness for the district. Regardless, the compactness of the Enacted Plan is similar to that of the Benchmark Plan and of other plans since the creation of the current Sixth District in 1992.

Consider first Reock Scores. We cannot directly compare districts dating back to the 1982 redistricting, because of the differing number of districts. We can, however, compare districts in the Enacted Plan to those in the Benchmark Plan.

Table 5: Compactness Scores, Benchmark and Enacted Plans

District Number	Reock		Polsby-Popper		I. Schwartzberg		Convex Hull	
	Benchmark	Enacted	Benchmark	Enacted	Benchmark	Enacted	Benchmark	Enacted
1	0.196	0.290	0.101	0.148	0.318	0.385	0.588	0.705
2	0.470	0.443	0.168	0.164	0.410	0.405	0.727	0.721
3	0.446	0.432	0.329	0.345	0.573	0.587	0.858	0.849
4	0.378	0.359	0.254	0.234	0.504	0.484	0.797	0.774
5	0.331	0.295	0.213	0.229	0.461	0.479	0.756	0.780
6	0.426	0.365	0.080	0.075	0.283	0.274	0.656	0.577
7	0.343	0.346	0.301	0.299	0.548	0.547	0.789	0.796

For all of these metrics, higher numbers represent more compact districts. As you can see, for the most part, these districts have roughly the same scores across metrics. The 1st District is made somewhat more compact using the Reock and Convex Hull Scores, and the 6th somewhat less compact, but overall, the numbers are comparable. Using the perimeter-based metrics, the districts all have similar compactness scores.

As Table 6 shows, the average compactness scores for the plan are comparable to those we saw in the previous plan and are almost as compact as the scores in the pre-1992 redistricting map.

Table 6: Average Compactness Scores, 1982 - 2022 S.C. Districts

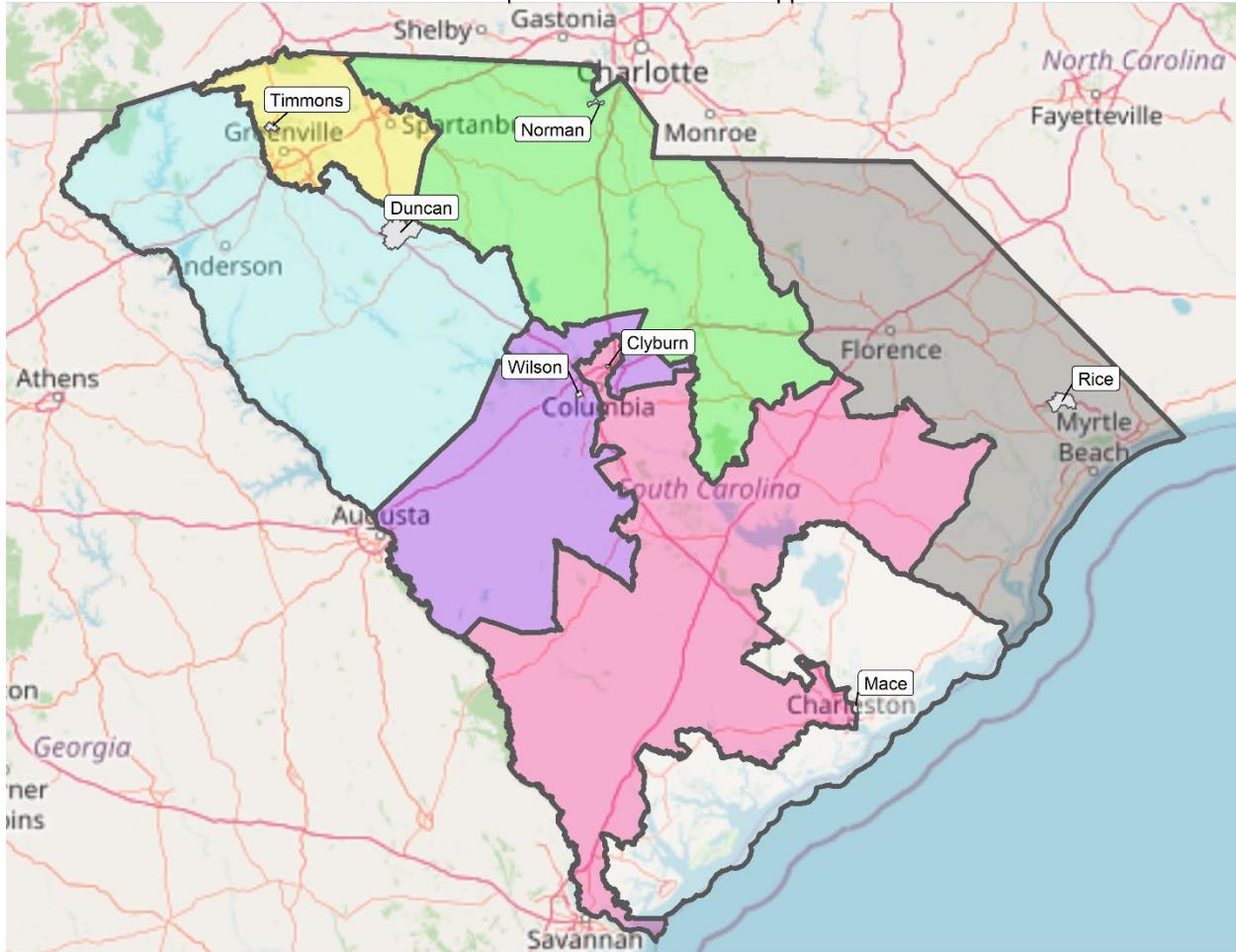
Year	Reock	Polsby-Popper	I. Schwartzberg	Convex Hull
1982	0.382	0.233	0.454	0.737
1992	0.318	0.125	0.318	0.664
2002	0.319	0.161	0.366	0.676
2012	0.370	0.207	0.443	0.739
2022	0.361	0.214	0.452	0.743

Incumbent Protection

As the following map demonstrates, the Enacted Plan ensures that representatives are not placed in the same districts. Note that the precise precincts in which Representatives Mace and Rice live have not been provided, so their locations are approximated from public information about their residences.

South Carolina Congressional Lines, Enacted Plan, Incumbents Precincts Labeled

Location of Reps. Rice and Mace are Approximate



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Racial Demographics and Politics

We will examine more closely changes in the individual districts below, but at a global level, the recent redistricting results in minimal changes to the Black Voting Age Populations (BVAPs) of the districts.

Table 7: BVAP Share, Old and New S.C. Districts

District	BVAP, Old	BVAP, New	Difference
1	16.6%	16.7%	0.2%
2	23.1%	24.5%	1.4%
3	16.9%	17.1%	0.2%
4	17.8%	18.4%	0.7%
5	25.1%	24.0%	-1.0%
6	51.4%	45.9%	-5.5%
7	24.8%	24.8%	0.0%

Districts 1, 3, 4, and 7 see almost no changes in their racial demographics. Districts 2 and 5 see modest changes to their racial compositions, while the Black Voting Age population of District 6 is reduced by 5.6 percentage points as part of increasing the total population in that district to the level of population equality.

The political composition of these districts is likewise mostly unchanged, with two exceptions. Table 8 shows the results of the 2020 Biden-Trump election, with third parties excluded.

Table 8: Biden 2-Party Vote Share, Old and New S.C. Districts

District	Biden Percent, Old	Biden Percent, New	Difference
1	47.0%	45.6%	-1.4%
2	44.2%	44.6%	0.4%
3	31.0%	31.0%	0.0%
4	39.6%	40.6%	1.0%
5	41.6%	40.8%	-0.8%
6	67.8%	66.3%	-1.6%
7	40.6%	40.6%	-0.0%

Most of the districts see their Democratic vote shares remain stable, which is unsurprising given the high degree of core retention overall. The First District sees President Biden's vote share drop from 47% to 45.6%, while the Sixth sees his share drop from 67.8% to 66.3% -- the latter is still comfortably Democratic. The change in the First District is more politically consequential, as described below.

Table 9 shows how voters were moved between districts, broken down by partisanship. Again, most of the changes are fairly marginal. Between Districts 6 and District 1, the latter shed 10,808 Biden voters to the former, mostly in the Charleston area, while picking up a net of 3,242 Biden votes back from the Sixth, mostly in Berkeley County.

Table 9: Net Movement of Biden Voters by District, 2012-2022 Lines

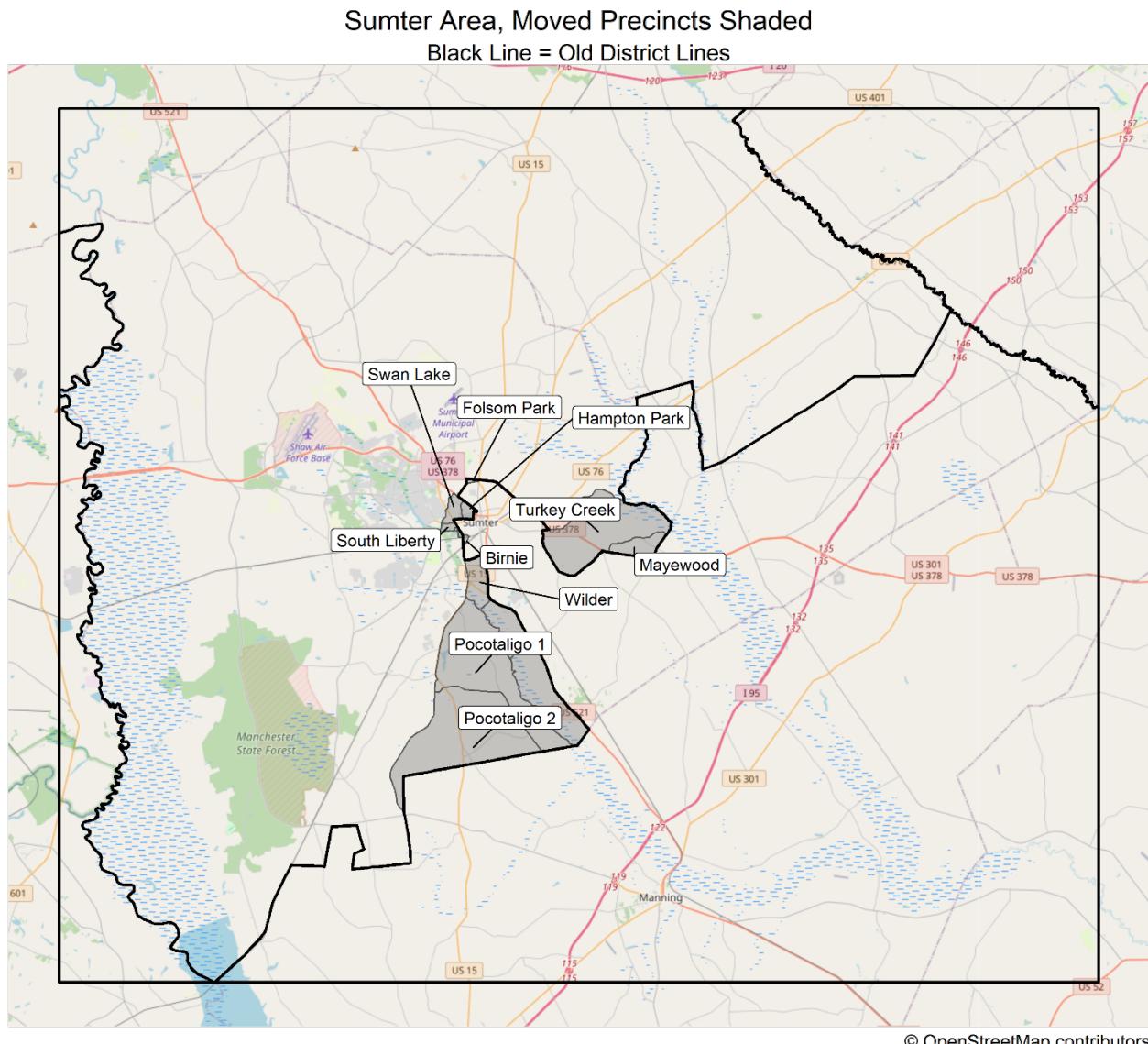
From	To						
	1	2	3	4	5	6	7
1	-	-	-	-	-	10,808	-
2	-	-	-	-	-	2,755	-
3	-	-	-	698	-	-	-
4	-	-	-945	-	-8,220	-	-
5	-	-	-3,211	-	-	212	-
6	3,242	5,485	-	-	89	-	-498
7	-	-	-	-	-	-18	-

Specific Changes to South Carolina's Congressional Districts

The District 5 - District 6 Boundary: Sumter County

We first look at the changes made to the boundary between District 5 and District 6 in Sumter County. Sumter County has a population of 105,556 according to the last census, 81,402 of whom were of voting age. Of those residents of voting age, 46.3% are non-Hispanic White, while 45.7% are Black.

The Enacted Map moves a total of 10,384 residents. The shifts are depicted below:

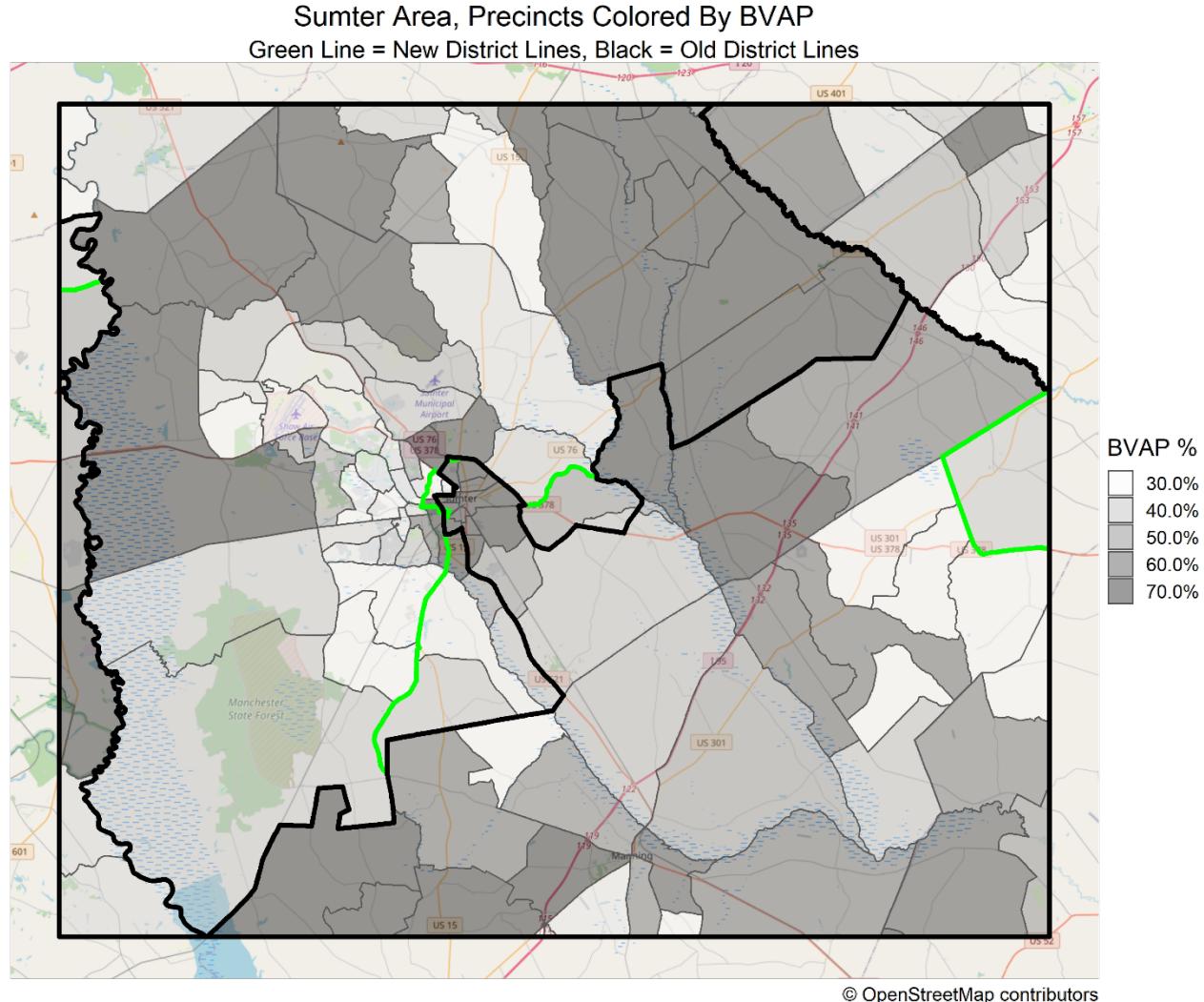


Most of these residents live in precincts that were split by the Benchmark Plan and are made whole by the Enacted Plan. The changes also tend to smooth the boundary between the districts. The pair of shaded precincts to the east of Sumter reflect the Mayewood and Turkey Creek precincts. Portions of these precincts also lie to the west of the old District 6, adjacent to the Pocotaligo 1 District. These portions are joined into a single district in the Enacted Plan. The map also adds Wilder, Pocotaligo 1 and Pocotaligo 2 as whole precincts to the Sixth District, smoothing the boundaries between the two districts. The 7,299 residents added to the Sixth District here are 51.8% non-Hispanic White and 41.3% Black.

In the city of Sumter itself, the map drawers made the South Liberty and Hampton Park precincts whole within the Sixth District, and added the Swan Lake precinct, which smooths the boundary between the Fifth and Sixth. A portion of the Birnie Precinct, which is already split in the Benchmark Plan, is also added to the Sixth. Overall, 2,739 residents, of whom 2,221 are of voting age, are added to the Sixth District. Of these, 62.3% are non-Hispanic White, and 30.7% are Black.

The map also moves a small sliver of the Folsom Park precinct to the Fifth District, making that precinct whole, and some census blocks in the Birnie Precinct to the Fifth. This totals 346 residents, of whom 235 are of voting age. They are 93.6% Black and 5.1% non-Hispanic White.

The following map shows the old and new district boundaries in Sumter County, superimposed over the precincts in Sumter County. These precincts are shaded by the BVAP shares in each precinct.

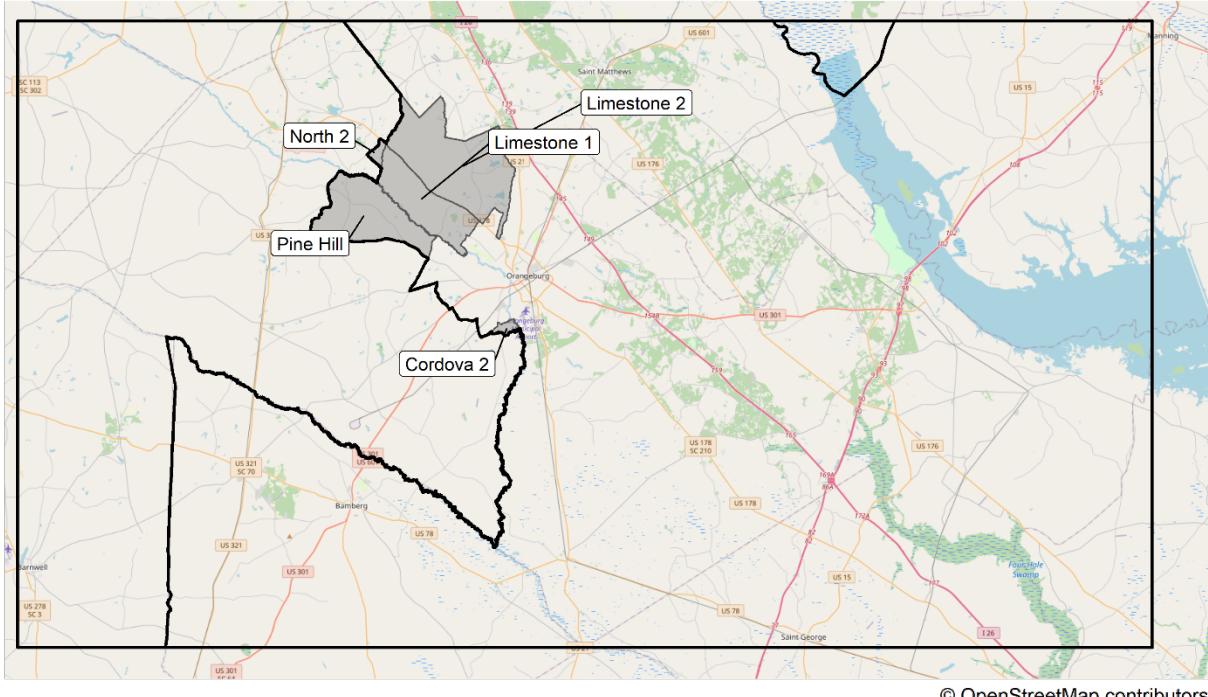


The District 2- District 6 Boundary: Orangeburg County

The Enacted Plan also makes changes to the boundary between District 2 and District 6 in Orangeburg. Orangeburg County had 84,223 residents in the 2020 census count. Of these, 66,567 are of voting age. The Voting Age Population is 59.9% Black and 34.9% non-Hispanic White.

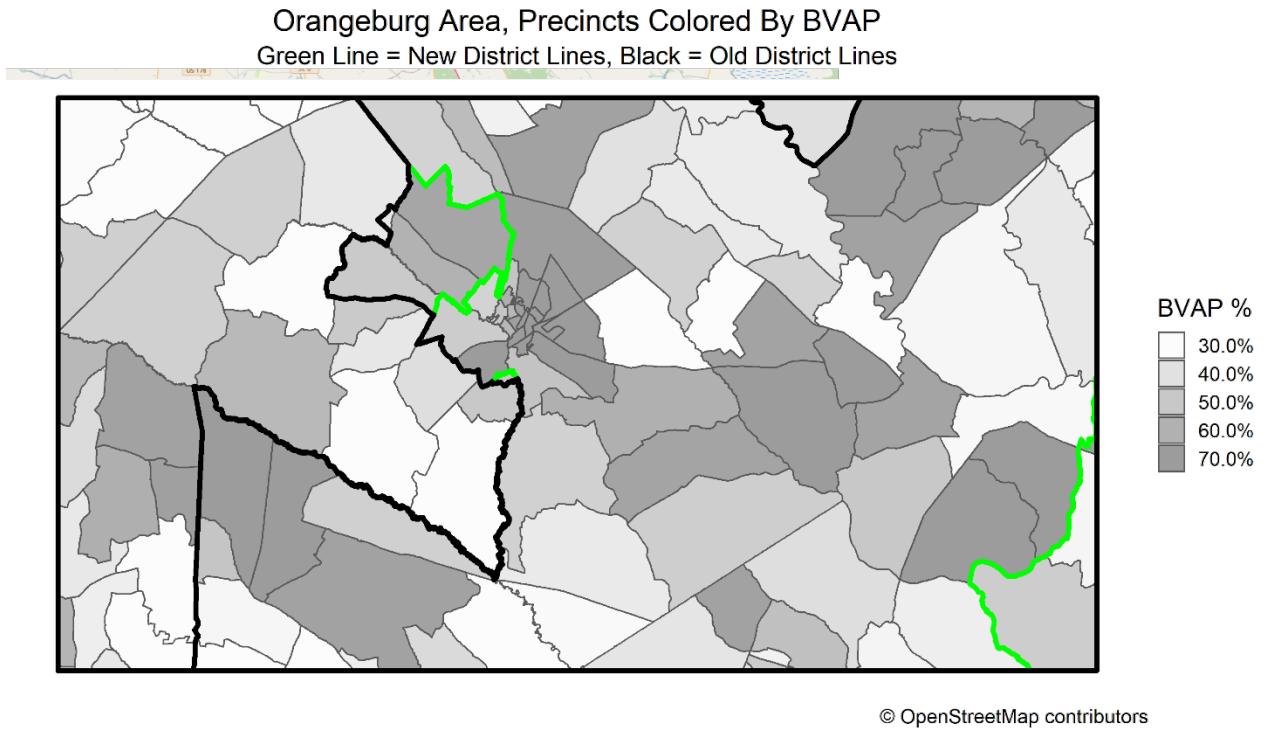
The changes to the boundary in Orangeburg are illustrated in the following map:

Orangeburg Area, Moved Precincts Shaded
Black Line = Old District Lines



In total, five precincts, or portions of precincts, are changed. South of Orangeburg, a small portion of Cordova 2 precinct is moved to the Second District, making that precinct whole. Northwest of Orangeburg, a portion of North 2 precinct and a portion of Pine Hill precinct are also assigned to the Second, making those precincts whole. Finally, Limestone 1 and 2, the only precincts in the area not also contained at least partially within the Orangeburg city boundaries, are also assigned to the Second District.

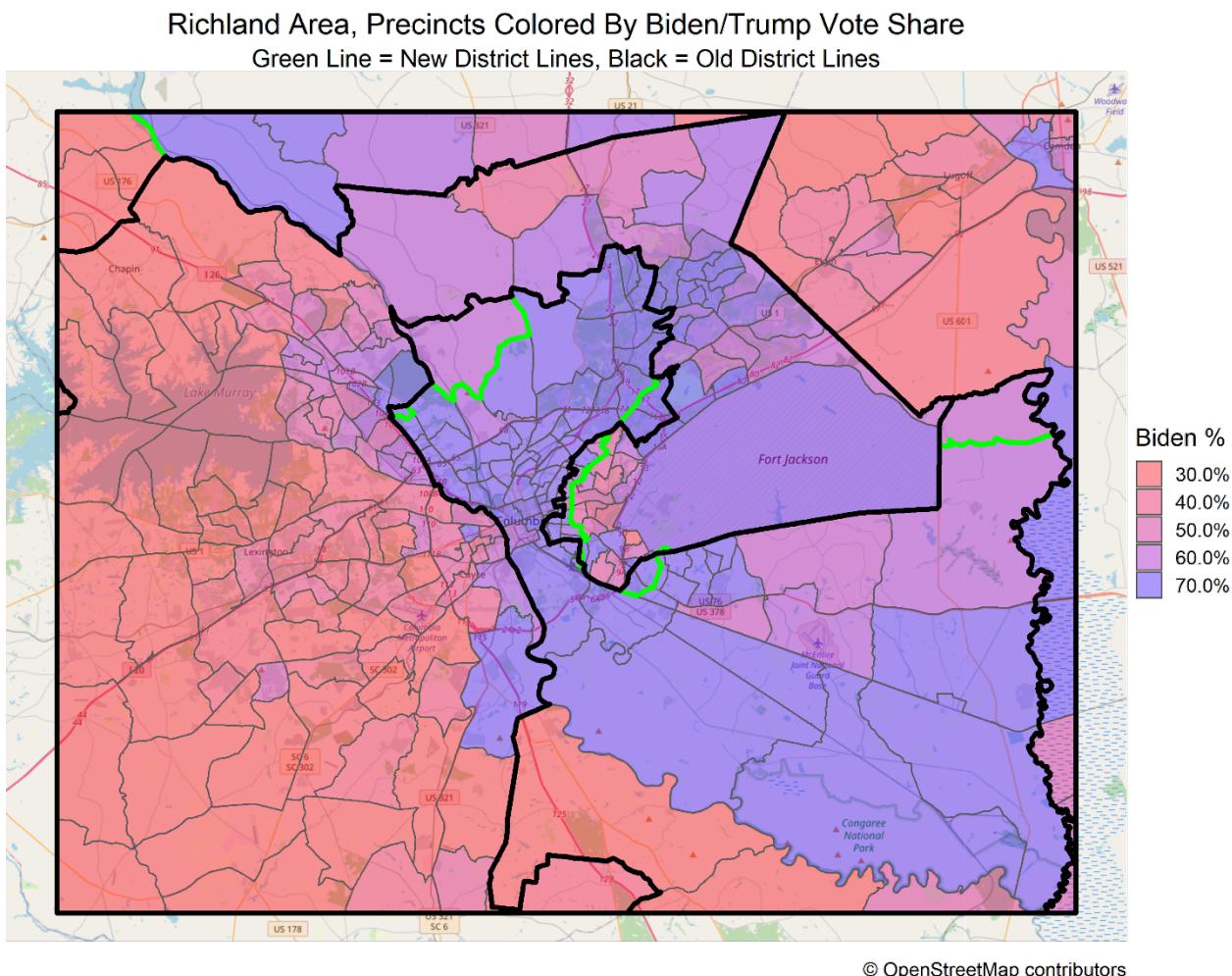
Overall, 5,973 residents are moved, of whom 4,522 are of voting age. These voting-age residents are 60.9% Black and 31.9% non-Hispanic White. The old and new boundaries between the two districts are reflected in the following map, while the precincts are shaded by their BVAP.



The District 2- District 6 Boundary: Richland County

The map also changes the boundary between District 2 and District 6 in Richland County. Richland County includes the capital city of Columbia. It has 416,417 residents, of whom 327,481 are of voting age. 44.4% of these residents of voting age are Black, while 44.3% are non-Hispanic White.

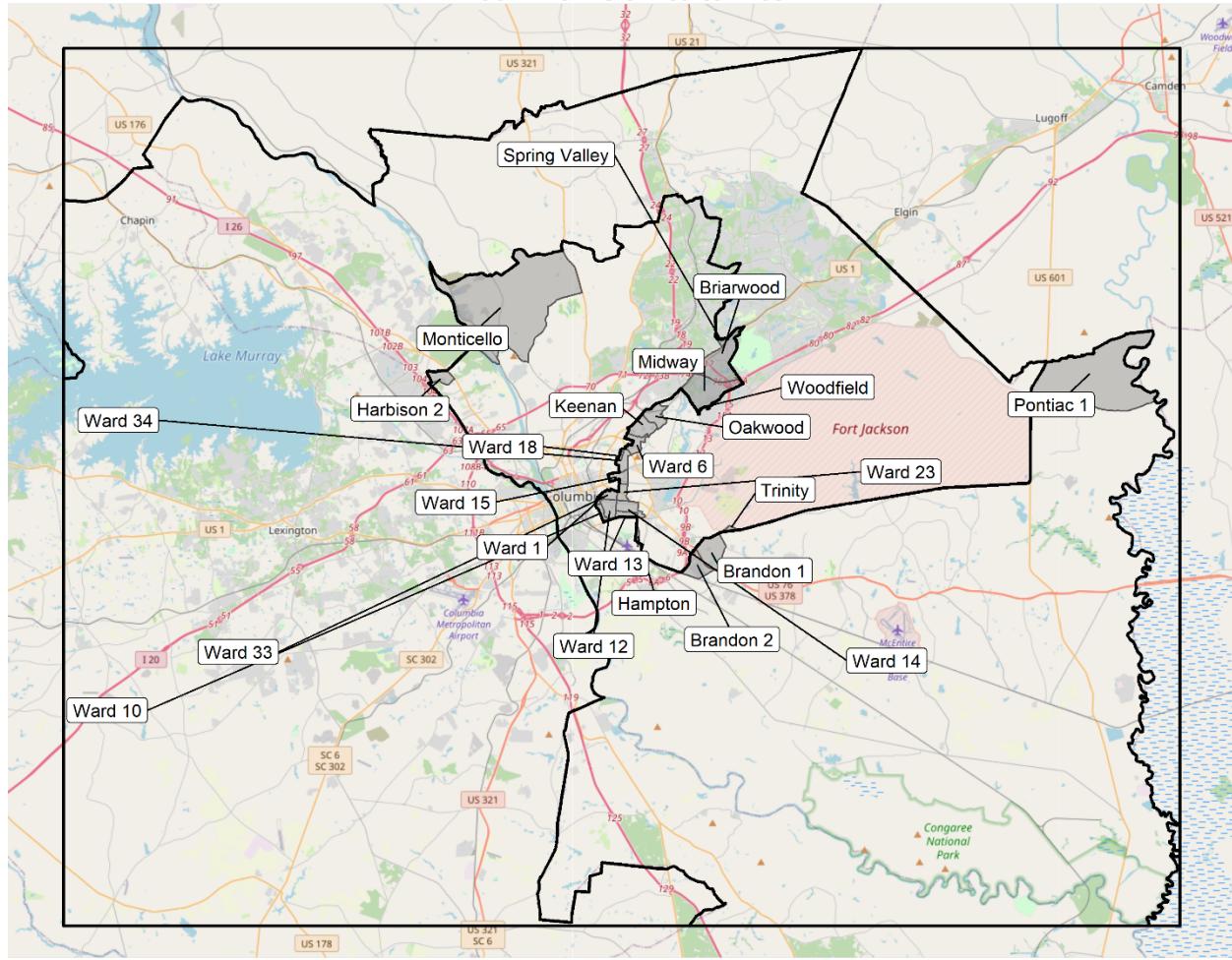
The boundary between the two districts gives a distinctive “hook” shape to the Second District. The following map demonstrates the reason for retaining this hook shape. It superimposes the lines from the Benchmark Plan and Enacted Plan over the precincts in the county, shaded by two-party presidential vote share. The Second District wraps around to take Fort Jackson into District 2, which is represented by Joe Wilson, a member of the House Armed Services Committee.



The changes to the lines here mostly make precincts whole, or add Democratic-leaning voters to the Sixth District, which needed to gain population. They are shaded in the following map:

Richland Area, Moved Precincts Shaded

Black Line = Old District Lines

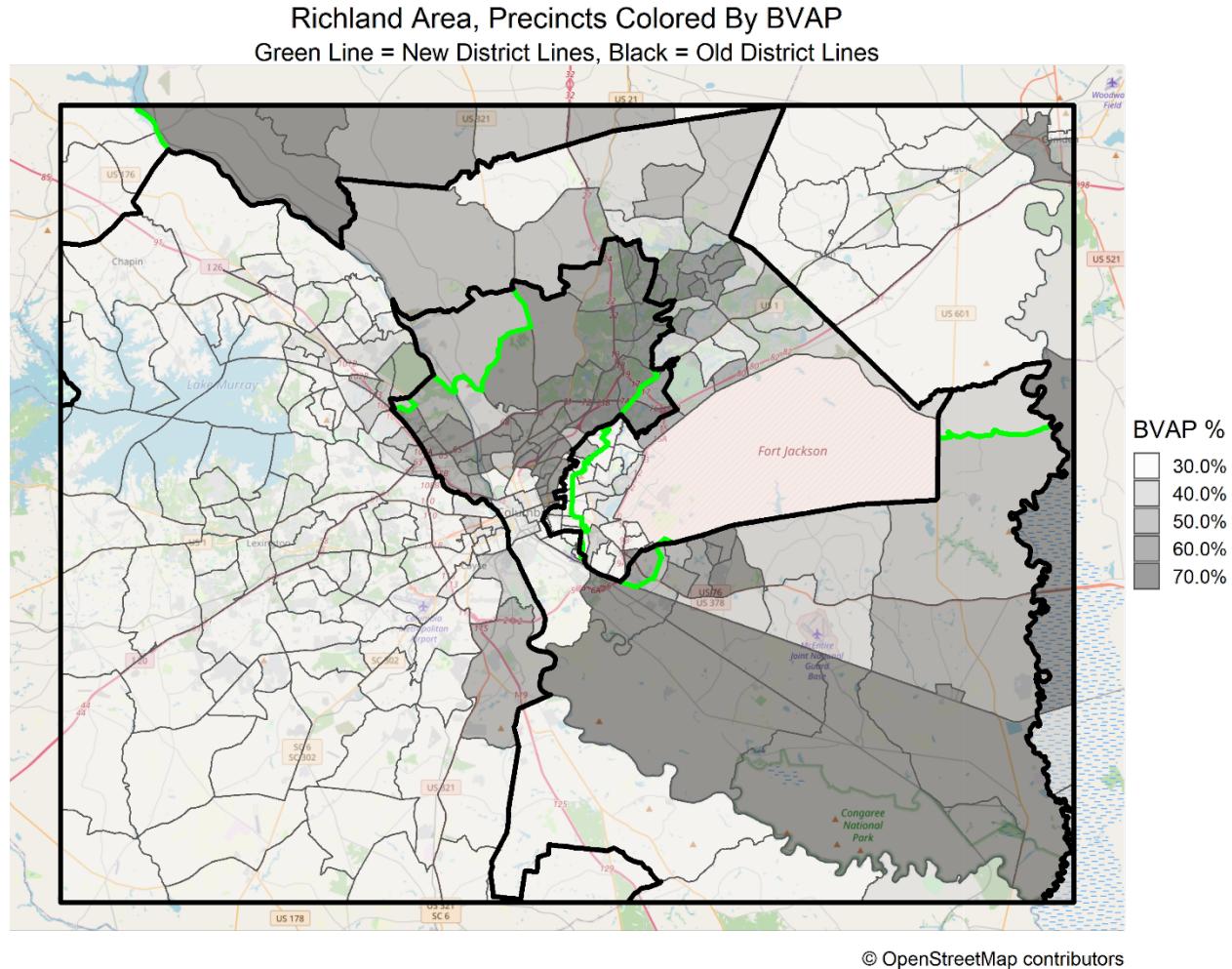


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To the east of Fort Jackson, a portion of the Pontiac 1 precinct is moved from the Sixth District to the Second, making that precinct whole. To the south of Ft. Jackson, parts of Brandon 1 and 2 precincts are moved to the Second, making those precincts whole. To the north of Ft. Jackson, a portion of Briarwood precinct is added to the Second District, making it whole; Midway precinct is added to the Second, making the boundary between the two a smooth line. A portion of Spring Valley precinct is also added to the district. On the northwest side of the city, portions of Harbison 2 precinct and Monticello are added to the Second, making those precincts whole.

Overall, 17,798 people are moved from the Sixth to the Second here, of whom 13,585 are of voting age. Of these, 60.9% are Black, and 24.1% are non-Hispanic White.

The map also shifts several precincts, or portions of precincts, located west of downtown Columbia from the Second to the Sixth District. Of these, nine shifts make precincts or wards whole. This shifts 14,397 residents, of whom 11,918 are of voting age. These residents are 79.2% non-Hispanic White, and 13% Black. However, they are also heavily Democratic, having cast an estimated 67% of their votes for Joe Biden. Included in these changes, some blocks are moved in the Hampton precinct, with 52 residents of Block 1004 moved to the Second District (55.6% of the VAP of this group are White), while 360 residents are moved to the Sixth District (65% of the VAP of this group are White). A map of the old and new lines superimposed over the precincts in Richland County, shaded by race, is provided below:



The District 1-District 6 boundary: Charleston Area

When the First District was drawn in 2012, it was not politically competitive. Republicans had held the seat since 1980. In the 2008 presidential election, the district voted for John McCain over Barack Obama by 13 points, and in 2012 it went for Mitt Romney by an 18-point margin. *See* Barone, et al, *The Almanac of American Politics*, 2014 1485 (2013). The Cook Political Report gave the district an 11-point Republican lean.

Over the course of the decade, however, the district became increasingly competitive. In 2016, Donald Trump's vote margin fell to 14 points, even as he improved upon Romney and

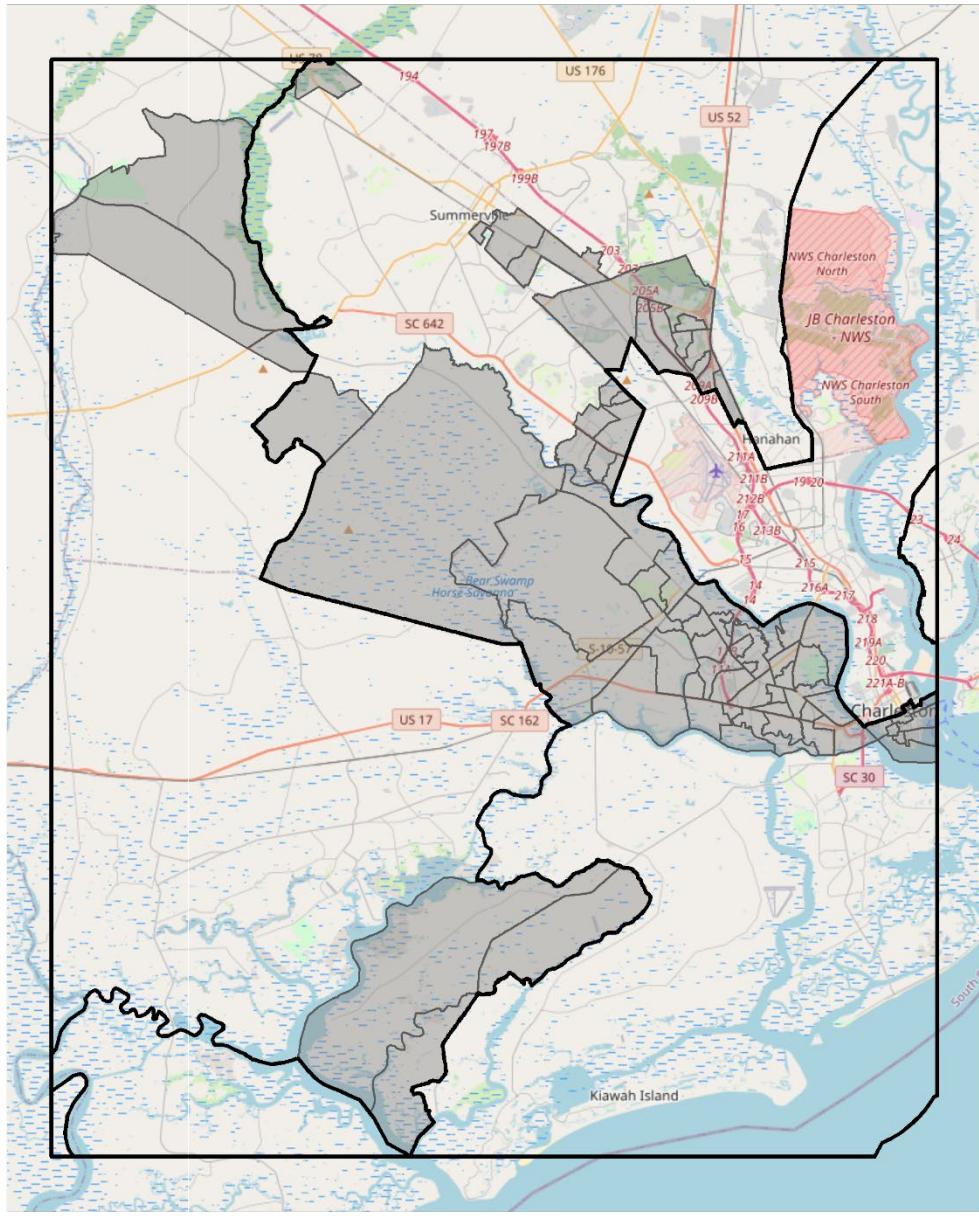
McCain's national vote shares. Cohen & Barnes, *The Almanac of American Politics*, 2018 1681 (2017). In 2018, incumbent Republican congressman Mark Sanford lost the Republican primary to Katie Arrington. Arrington, in turn lost the district to Democrat Joe Cunningham in the 2018 election by a 3,982-vote margin. In 2020, Cunningham lost the district to Republican Nancy Mace by a margin of 5,415 votes. At the same time, as shown in Table 5 above, Donald Trump carried the district by just six points, putting it in the range of competitive territory.

Population growth in the First required it to shed residents under the Enacted Plan. This shedding was done in a way that improves Republican prospects in the district. In particular, Table 8 above shows that the changes resulted in a 1.4% decrease in Joe Biden's vote percentage in District 1. That decrease corresponds to a 1.4% increase in Donald Trump's vote percentage (excluding third parties). Thus, all told these shifts result in a total change to the margin between the Democrat and Republican vote shares in District 1 of almost 3% in favor of Republicans, outstripping Joe Cunningham's margin over Arrington.

First, map drawers made Berkeley County whole, and placed it all within the First District. Berkeley County has 229,861 residents, of whom 173,949 are of voting age. Of these, 22.6% are Black, while 62.8% are non-Hispanic White. In 2020, this county voted for former President Trump by an 11-point margin. However, the residents of the shifted portions of Berkeley County are different politically than the rest of Berkeley County; they voted for President Joe Biden by roughly a 2,200-vote margin.

Second, map drawers made changes in Charleston and Dorchester counties. The peninsula on which Charleston sits is placed wholly within the Sixth District under the Enacted Plan, as is the portion of Charleston County to the northwest of the city. To the west, the boundary is moved from the Ashley River to Wappoo Creek, adding the West Ashley area to the Sixth. Portions of Dorchester County close to the city are also added to the Sixth. The changes are illustrated in the following map:

Charleston Area, Moved Precincts Shaded
 Black Line = Old District Lines



Third, map drawers made Beaufort County whole and added a small portion of Jasper County in District 1.

Changes to Districts 1 and 6 bring the district line into conformity with natural geographic boundaries. The Cooper River separates the Charleston Peninsula in District 6 from Daniel Island (which the Enacted Plan makes whole) in District 1. The Charleston Harbor separates the Charleston Peninsula from Mount Pleasant in District 1. The Stono River and Wappo Creek separate James Island and Johns Island in District 1 from St. Andrews in District 6. And the

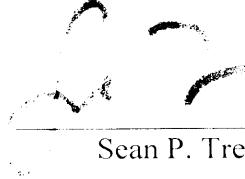
Wadmalaw River in Charleston County separates Wadmalaw Island in District 1 from St. Paul's in District 6.

All told, 140,489 residents are moved from the First to the Sixth, of whom 113,531 are of voting age. Of these voting-age residents, 63.9% are non-Hispanic White, while 23.4% are Black. This compares to an overall combined BVAP in Charleston and Dorchester Counties of 22.5%, so the net effect of these moves on the racial composition of these districts is minimal. But moving these residents reduces the Democratic performance in District 1 appreciably, as these residents voted for Joe Biden by an 18% margin. Another 5,309 voters are moved in from the 6th district to the 1st; these voters are 64% non-Hispanic White, and voted slightly for President Trump.

As noted above, when combined the population swaps between Districts 1 and 6 make the First District on net three points more Republican on the two-party vote share. Significantly, this exceeds former Representative Cunningham's vote share in the district in 2018. By reducing President Biden's vote share to 45.6%, in a year in which he won 52% of the two-party vote nationally, the General Assembly likely moved the district out of competitive territory and into reliably Republican territory, at least in the short term.

VI. Conclusion

The Enacted Map generally reflects only modest changes from the map that was in effect from 2012-2020 and comports with traditional districting principles identified by this Court and the General Assembly. The Enacted Map retains high percentages of the cores of all of the Benchmark Districts, which the Court upheld against racial gerrymandering and other challenges in *Backus*. To the extent the Enacted Map changes district lines, most districts changed only marginally, and those changes either smooth out existing lines or make precincts whole. The one exception is the First District. The changes in the First do little to change the racial composition of that district, but make it meaningfully more Republican in light of its recent electoral history.



Sean P. Trende

4/18/2022